DIGITAL EQUIPMENT CORPORATION

education

Convincer/Presentation Materials

- Presentation Starter Kit
- Questions and Answers about Educational Computers
- Educational Computer Consultants
- Computerized Analysis of School Computer Requirements
- Discount Certificates

computers are for kids — digital — EduSystems—expandable, economical

PRESENTATION STARTER KIT

"Convincing" implies that you must at some time make presentations of your program--to your immediate colleagues and administrators, and to your school board. You might find it advantageous to provide materials to one of your administrators and assist him in making presentations further up the chain.

The materials and documentation provided here can serve as the nucleus of these presentations.

The Presentation Starter Kit consists of this guide and ten (10) viewgraph transparencies for use with an overhead projector. The ten viewgraphs are the following:

1. President's Science Advisory Committee Quote
2. Project LOCAL Test Results
3. American Institutes for Research Survey
4. Educational Computer Users
5. Instructional Computer Users
6. Dartmouth Secondary School Project
7. Dartmouth Project Map
8. EduSystems Expansion Chart
9. EduSystem Configurator Chart
10. Minicomputer Manufacturers Chart

You should acquire copies of the following reports:

Survey of Computing Activities in Secondary Schools, Final Report, AIR-852-10/70-FR, American Institutes for Research, 8555 Sixteenth Street, Silver Spring, Maryland 20910.

and

The Computer as Pupil: The Dartmouth Secondary School Project, Final Report, NSF Grant AW-2246, Kiewit Computation Center, Dartmouth College, Hanover, New Hampshire 03755.

GROUNDWORK

Acquiring an Educational computer system for your school normally means convincing:

fellow teachers
school administrators
the superintendent
school board
the public

The types of convincing required for each of these categories are:

Fellow Teachers - The instructional computer is a valid and powerful teaching tool (motivation, relevance, teacher assistance, etc.).

Administrators - A valid teaching tool, an aid to the entire student body, and a mark of progressive education (documentation of who and how many are using computers).

Superintendent - A valid teaching tool, progressive education, an aid to administration, and a justifiable budgetary item (break-down of cost-per-student comparisons with present items; the instructional program you plan).

School Board - A valid teaching tool, progressive education, your planned program, budgetary comparisons and a detailed outline of funding requirements and sources.*

The Public - Parent enlightenment through student campaigns, field trips to neighboring installations, progressive education*.

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* The Educational Computer System is generally proposed as an additional expense for the schools to bear, when its worth to the school is so readily apparent that a shift of school funding may be the logical approach. The Math Department, for example, has traditionally budgeted for annual replenishments of textbooks and chalk, and has never had the dollar-per-student investment of more materially oriented areas.

The requirements which fall upon you then are a series of decisions and trade-offs:

Instruction only?
Instruction and Educational Data Processing?
Student Population in the Program?
Release time for the teacher in charge?
Remote telephone tie-in of other schools?
In-service training of teachers?
Multiple terminal system for high student interaction?
Batch marked card system for high volume throughput?
Your instructional program:

Students program the computer

- Business
- Math
- Sciences
- Social Science
- Data Processing

Computer guides the students

- Computer Managed Instruction (programmed textbooks with the computer as tester, next assignment giver and record keeper).
- Computer Assisted Instruction (computer gives canned drill-and-practice and tutorial work to slow learners).

Work with your local DEC Educational Specialist on how each set of requirements define a particular EduSystem configuration.

Remember, as with all presentations, to be prepared and to expect left-field questions from those who have not been studying the computer needs of the school as you have.

Finally, define the instructional program well. In what subject areas will it be used? When? By how many students? By what teachers? Where will the computer be housed (any place there is a standard outlet)? Remote telephone lines? How much release time for you or the teacher-in-charge?

P.S. Color your viewgraphs with a permanent ink felt tip pen.

VIEWGRAPH DESCRIPTION

A brief description of the viewgraph is:

1 A quote, from the Report of the President's Science Advisory Committee, on Computers in Higher Education, The White House, Washington, D. C. February 1967.

2 A bar chart showing the significant increase in group Scholastic Aptitude Test scores of computer using students over traditionally taught students.

3 The cover of the A.I.R. survey.

4 A quote of the 35 per cent of our nation's secondary schools who now use computers.

5 A chart showing the rapid rise in the use of the instructional computer system over the past few years.

6 The cover of the Dartmouth Final Report.

7 A map showing the schools which participated in the Dartmouth project and those who now have DEC computer systems.

8 A pictorial description of EduSystem expansion.

9 A chart outlining the subsystems which are combined to form an EduSystem.

#10 A bar chart depicting the percentage of total minicomputer installations as of January 1, 1971, by manufacturer.

THE PRESENTATION

Viewgraph	Sample Remarks
X*	The computer has had a greater effect on our lives than any other development, etc., etc.
	or
	The need to educate each individual in the face of ever expanding knowledge in every subject area has led Education to better utilize today's technology, etc., etc.
	or
	Do we want our children to know as little and be as fearful of the computer as we are?
# 1	The President's Science Advisory Committee reported in 1967 that "computing increases the quality and scope of education. Computing is not an esoteric or specialized activity; it is a versatile tool useful in any work with a factual or intellectual context. Computing is becoming almost as much a part of our working life as doing arithmetic or driving a car. If the deficit in educational computing is not made up quickly, millions of students who will have attended (these) institutions in the 1970's will be poorly prepared for the world of the 1980's and 1990's."
	Francis Keppel, former U. S. Commissioner of Education, stated, "it seems likely that education will want to explore any method that can keep the individual from being lost in the crowd, and yet make all sorts of expensive services readily available to him. And this is the rare capability that the computer may help us provide--individualization on a mass basis."
	And in 1970, Francis Sargent, Governor of Massachusetts, said, "with the present 30,000 employment in the computer industry in Mass. expected to triple by 1975, educational institutions must be prepared to meet this growing demand not only by expansion of facilitites, but by realignment of curricula."

* X implies that you should make a viewgraph to fit your needs.

# 2 In Project LOCAL, one of the pioneering secondary school computer projects, Westwood High School eleventh grade algebra students were divided into three groups. All were taught by the same teacher. One group was designated the control group, one group received instruction in flowcharting to design and represent approaches to problems. The third group learned both flowcharting and computer programming and used the computer.

Over the school year the computer group improved more than either of the other groups in both general scholastic and reasoning abilities.

Per Cent Change in Group Mean from
Pre-test to Post-test

	Abstract Reasoning	Scholastic Aptitude
Control Group	4.6%	2.9%
Flowchart Group	9.7	5.1
Computer & Flowchart Group	17.2	7.5

# 3 The impact of the early utilization of Educational Computer Systems were so sudden and great that the NSF commissioned the American Institutes for Research to perform a nationwide survey of the number of schools using the computer and how they had implemented it in their school's program.

The A.I.R. survey examined computer usage:

For administrative applications-
- Extent of use in total population
- Degree of use among computer users

For instructional applications-
- Extent of use in total population
- Degree of use among computer users
- Nature and purpose of use
- Type of source and level of support
- School characteristics and use
- Previous use
- Plans for future use

# 4 The Educational community has shown a rapid acceptance of both the administrative and instructional capabilities of the computer. The American Institutes for Research survey reports that 35 per cent of the nation's secondary schools now utilize a computer in administrative and/or instructional modes (that was in 1970 - add about 5 per cent to the total by the end of the 1971-1972 school year).

# 5 The instructional use of an Educational Computer System has, in particular, shown an extraordinary growth rate the last few years, with the A.I.R. survey setting 13 per cent as the portion of our secondary schools utilizing an instructional computer system in 1970 compared to less than 2 per cent in 1965.

# 6 The pioneering and perhaps best known instructional computer project was just completed at Dartmouth College, the birthplace of the interactive computer language, BASIC.

In June of 1967 Dartmouth College with the support of the National Science Foundation began a three year project exploring the use of computing in secondary schools. Eighteen schools scattered over five New England states participated in the project (see Viewgraph 7). This mixture of public and private schools did not use the computer at Dartmouth for such administrative tasks as scheduling or large scale record keeping. Instead, following the Colleges example, the computer was made available to the students and to their teachers so that they could explore together the classroom and extracurricular uses of computing.

The Interim Report, after detailing the activities of the first year, concluded:

- The computer is best used to explore problems of personal interest to the user, i.e., as a creative outlet for his curiosity.
- Programming courses are obsolete. Developing the ability to program is a matter of a few hours.
- Teletype time is too precious to be wasted by using the computer as a teaching machine.

- The average student can learn to program in seventh grade.
- The major influence a student's ability has on using the computer is the length of time required to do a task. Even very slow students can productively use a computer.

Benefits -

What benefits accrue to the school that decides to install a computer? Teachers spoke of the enthusiasm of their students. Students spoke of an "outside challenge" that was a "creative outlet" that provided "relief from the tedium of calculation," that encouraged a "step-by-step approach to the problem" and "makes a person give clear directions" yet remained "both useful and fun," "useful in the sense of being a challenge to...creativity". Many of the large programs written by students exhibit a creative energy and intellectual discipline never before exhibited in secondary school (with the exception, perhaps, of a few science fair projects, an occasional outstanding term paper or an exceptional work of art).

This creative energy is not really so curious a quality. It is curious that in the "normal" secondary school with its lessons to be memorized and examinations to be passed, there is so little occasion for a student to ask his own questions and pursue their solutions with imagination and enthusiasm. If the solution to his problem is a working computer program, he will have learned as one learns a subject when one must teach it. In addition, he will possess a finished product that is very much his own creation.

As its independent best, a computer program is not only a student's personal solution to a problem, it is a personal solution to a problem he posed for himself.

It has been suggested that a computer terminal be considered like the school band. The benefit a large number of students will obtain is the lesson that "the computer is only as smart as you tell it to be" and that "men solve the problems and computers do the calculations". Those who become involved in using the computer in classwork will benefit by having a computer terminal provide them "with a source for the relief of a mathematical-problem tedium, and with an encounter in programming which makes one systematically organize one's thoughts". Those virtuosos who find programming "useful and fun" will benefit as they "find it very intriguing to write a hard but useful program".

Conclusion -

The experience of the project over the last three years would suggest that perhaps a new and excellent way to teach the art of problem solving is to give students the responsibility of teaching various tasks to computers. This kind of learning is as important as any of the current improvements that rapid calculations afford traditional classes.

The ability to solve problems is certainly one of the fundamental and universal talents a public education should encourage in students. If it is a talent not easily codefied in a set of rules, it is all the more important that the young be allowed every opportunity to develop this facility through practice.

7 The Dartmouth Secondary School Project encompassed New England, with eighteen high schools participating directly in the project with telephone connected terminals running from Dartmouth's computer center. Many of these schools found that the student demand for more terminals could most economically be satisfied through the lease or purchase of their own mini-computer instructional system. This map indicates those project participants who acquired a DEC Educational Computer System, an EduSystem by the spring of 1971.

X* (Present your instructional program in terms of your educational goals, the numbers of students involved, how these factors determine the type of computer system you require, and what trade-offs you have made, etc.)

8 Digital EduSystems meet school needs with graceful expansion. This EduSystem expansion chart can be used to describe the trade-offs between batch processing (EduSystem 30), core-based timesharing (EduSystem-20), and resource-sharing multi-language disk supported timesharing (EduSystem-50). Talk about expansion and how you can expand your EduSystem-20 into an EduSystem-40, or EduSystem-40/EDP, etc.

# 9 This EduSystem configurator chart will permit you to tie together such things as the DECtape option on EduSystem-30, the four DECtape transports and DECwriter of EduSystem-40/EDP, and answer easily the "how about a line printer?", etc. questions. You can build a system for your audience.

#10 Delineate your reasons for recommending a particular manufacturer. Besides the characteristics of the computer itself, itemize such things as size, stability, service facilities and policy, past performance and commitment to Education. Liken the selection of a manufacturer of computers to the similar process of choosing manufacturers to contact in acquiring a driver-training car. You would not normally consider Maserati, Subaru, Mitsubishi, Fiat, Messerschmitt, Offenhauser Engineering, Manx Dune Buggies, etc. even if their cars were able to top 200 mph or get 45 miles-per-gallon.

The other manufacturers on this chart are:

HP - Hewlett Packard
H - Honeywell
V - Varian
DG - Data General
GA - General Automation
I - Interdata
SE - Systems Engineering
CA - Computer Automation
Others - IBM, Spiras (defunct), etc.

X* Summarize:

- An Educational Computer System is an accepted and valuable tool in today's progressive classrooms, etc.

- The cost-per-student involved in our proposal program will be____ and is comparable to ______ now spent for_____.

- Our planned instructional program will:

  1. Substantially improve learning among both slow and fast students.

  2. Provide unprecedented motivation.

  3. Foster discipline and clarity in problem solving.

  4. Provide teachers a versatile aid to regular class instruction.

  5. Provide experience with a vital, contemporary machine.

DIGITAL Answers Your Questions About Educational Computers

Q. Why should we use a computer?

A. Three reasons:

1. Substantial inprovement in student learning.
2. The computer is an unprecedented motivational tool.
3. Everyone will be exposed to computers in any walk of life today. They must be prepared to use them.

The President's Science Advisory Committee stated in 1967 that "computing increases the scope and quality of education."

Q. How many schools use computers today?

A. Virtually every college in the U. S. offers hands-on computing to their students. Thirteen per cent of secondary schools offered instructional computer capability in 1970 compared to less than 2 per cent in 1965.

Q. I'll bet mainly schools in rich suburbs have computers.

A. Not at all. Computers can be found in every state and province. Inner city schools in New York, Pittsburgh, and Los Angeles have instructional computers. Towns in the outlying reaches of Vermont, South Carolina, Iowa, and New Mexico and every other state have computers. Any place where good education is encouraged is likely to have a computer.

Q. You mentioned an improvement in student learning. Tell me more.

A. In Project LOCAL, one of the pioneering secondary school computer projects, Westwood High School eleventh grade algebra students were divided into three groups. All were taught by the same teacher. One group was designated the control group, one group received instruction in flowcharting to design and represent approaches to problems. The third group learned both flowcharting and computer programming and used the computer.

Over the school year the computer group improved more than either of the other groups in both general scholastic and reasoning abilities.

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Flowchart Group	9.7	5.1
Computer & Flowchart Group.	17.2	7.5

Q. That's very impressive. Have others had similar results?

A. Yes. In a test done in Altonna, Pennsylvania, it was found that the average score of students exposed to the computer on College Entrance Examination Board (CEEB) tests was 750 compared to the control group with an average score of 670.

The very major Dartmouth Secondary School Project (NSP Grant GW-2246) concluded that perhaps a new and excellent way to teach the art of problem solving is to give students the responsibility of teaching various tasks to computers. This kind of learning is as important as any of the current improvements that rapid calculations afford traditional classes.

Q. But if computers solve student problems, what do the students learn?

A. Computers only solve problems after the students "teach" the computer to grind through the calculations. Students and teachers can really come to appreciate that "people think and machines work."

Q. There's hardly time in the school year to teach the regular subject matter. How can computers be taught too?

A. In school after school teachers have found that students using computers learn more on their own and rush on to new topics because it means a new way to use the computer. One teacher using a computer found her ninth-grade math class finished the regular text 1-1/2 months before the end of the term when before she had always had trouble getting through the book at all.

Q. How long does it take to learn to write programs?

A. Using a self-teaching BASIC text, the typical student can learn to write meaningful programs after two to four hours at the terminal.

Q. What about the slow learner?

A. Computers are particularly beneficial here. They are completely impartial and infinitely patient while the student literally "discovers" that he too can make the computer work for him. And he's doubly motivated realizing that he's using the very same machine as the brightest students at school.

Q. The computer was mentioned as being a motivation tool. How does it motivate?

A. In a variety of ways. Whether it's the impersonality of the computer, the relief of math drudgery, the sense of accomplishment, or just the fact that it is a contemporary machine, students really take to the computer.

A recent study by Dr. Robert Hess of the Stanford School of Education reported that 14- and 15-year olds "associated such human virtue as trustworthiness, reliability, veracity, and fairness with the computer." What's more the study finds the youths rate the computer as a "more positive source of information than their teachers, textbooks, or television news reports."

The Dartmouth study noted that many of the large programs written by students exhibit a creative energy and intellectual discipline never before exhibited in secondary school. At its independent best, a computer program is not only a student's personal solution to a problem, it is a personal solution to a problem he posed for himself.

Q. How much training do teachers need to teach using a computer?

A. Two to four weeks before the program starts. This can either be group instruction provided at an NSF summer institute; instruction purchased from the computer manufacturer, representative, or independent group; or independent, self-taught instruction.

It is desirable for teachers using the computer to be allowed one period per day for helping students and for writing and debugging their own programs.

Q. Which teachers (courses) use the computer most?

A. Generally, the computer invades the school through the math classes. Physics is usually next to follow. Beyond that, computer usage is about evenly split between social studies, chemistry, business, biology, earth science, and a new course, computer science.

Q. Are textbooks available which use the computer?

A. Yes. Textbooks are extensively available for math--seventh through twelfth grade. Somewhat fewer materials are available in the other disciplines, although the quantity is growing explosively.

Q. Are there societies or user groups which exchange information?

A. Yes. Several user groups are active in different geographic areas. In addition, some of the major secondary school projects issue newsletters--they are described in EDU #2.

Q. What equipment is required?

A. A computer terminal that is reliable and a programming language that can be taught in a few hours to students, i.e., BASIC or FOCAL.

Q. What is a "terminal"?

A. A terminal most often is a teletype, which is something like an overgrown electric typewriter. The DECwriter is a high-speed, solid-state variation of this.

Where printed output is not desired, an alpha-numeric display terminal can be used--it looks like a typewriter keyboard and small TV set. It's main virtues are that it is fast and noiseless.

Q. How many students does one terminal serve?

A. In a public school--from 60 to 90; in a private school--from 90 to 140. This assumes a median student usage level of two 10-minute or one 20-minute period per week.

More established programs like Project LOCAL have found that as computer usage spreads, more and more terminals are needed. This occurs because more classes (and students) are using the computer, more time is needed by existing users, and time should be allowed for major projects of a small number of intensive users. On average, after 4 to 5 years, median student usage will increase to 50-60 minutes per week.

Q. Can students prepare programs outside of class and then run them so they don't use as much terminal time?

A. Yes. Problems should always be thought out, flow charted and coded before the student sits down at the computer terminal.

Many schools purchase a second off-line teletype for every two on-line terminals. The off-line terminal is used to prepare paper tapes of programs and then these are fed into the on-line terminal which is used only to run and debug programs.

Another approach for maximum throughput is a "fast batch" system. Students can prepare programs and write them on special tab cards at home or in study halls. An optical mark card reader then runs all the programs in a batch mode. However, it is still highly desirable to have one or more interactive terminals along with the fast batch system to run interactive simulations and to give students the opportunity of directly interacting with the computer.

Q. What do the terms CAI, simulations, etc. mean?

A. CAI means "Computer Assisted Instruction." This normally refers to drill and practice--the computer presents a problem to the student and the student responds. If he is correct, he goes on to another problem; if not, he gets a review problem. This has greatest applicability in the primary grades or for teaching masses of factual, memory information.

Problem solving means using the computer as a very much extended calculator to do both mathematical and logical reasoning problems. In problem solving the student programs the computer, whereas in CAI, in a sense, the computer programs the student.

Simulations, sometimes called models or games, use the computer to simulate a real-world process. Such as a lunar module, genetic reproductive process, life cycle of a pond or a country's economy. The student manipulates the variables with the computer showing him the results of his actions. He learns by doing and experimenting rather than passively reading about the simulated system.

CMI means "Computer Managed Instruction." CMI uses the computer mainly to grade tests and regroup students throughout the term with other students on a similar level.

Most good secondary school programs use the computer in both problem solving and simulations. CAI and CMI are more specialized and generally require bigger machines.

Q. Couldn't a calculator be used for problem solving?

A. Yes, but to a very limited extent. A calculator does not have the logical structure of a computer nor does it have a simple English-like language. Hence, it does not foster the same creative thinking that a computer does. Furthermore, calculators print only numbers, a very serious limitation in anything beyond the simplest numeric problems.

Q. How do we get a computer terminal into a school?

A. Two ways--rent a terminal and computer time from a service bureau or educational cooperative. Or buy your own computer.

Q. How much does it cost to rent a terminal?

A. Computer time for one terminal costs $2500 to $3500 per terminal per school year. Terminal rental adds $650 to $850, telephone line charges usually run $800 or more, and supplies another $500. A recent survey by NATION'S SCHOOLS magazine found the average cost to be $5500 per terminal per year. Average costs on the Dartmouth system ran even higher due mainly to increased telephone line charges. Costs for additional terminals increase almost linearly although most service bureaus give big users a slight break.

Q. How much does it cost to purchase and operate a computer?

A. The following table was prepared using prices from DEC's October 1, 1971 price list.

System	Terminals	Purchase	Annual Lease	Misc. Supplies	Annual Total/ Terminal
EduSystem 10	1	$ 7,390	$ 3000	$ 500	$3,500
EduSystem 20	5	$14,790	$ 5352	$2,000	$1,570
EduSystem 50-16	16	$85,070	$32,904	$4,800	$2,356

Q. If we buy a computer, how about terminals in other schools in the district?

A. Multi-user or time-sharing systems, even based on a minicomputer, can generally have local or remote terminals at the option of the user. Remote terminals use ordinary telephones and telephone lines to connect to the central computer.

Q. What about obsolescence if we buy a computer?

A. Radical innovation in computer hardware has been slowing substantially over the last 5-6 years. Conservatively speaking a minicomputer should have a useful life in a school of 10 years, probably much more.

DEC's Edu Systems are built with the school in mind--the smallest one-terminal system can be expanded in very graceful increments to a 16 terminal system. Nothing is lost at any point in the process.

All of the major pioneering secondary school projects, such as Project LOCAL started renting outside computer time have now purchased minicomputers. Fully one-third of Dartmouth's original users now own DEC machines.

Q. Do we need air conditioning or raised floors for a computer?

A. No. Minicomputers are built to withstand rugged environmental conditions. A computer and single terminal may be wheeled around on a cart from room to room.

Multi-terminal systems are best housed in a room set aside as a computer work room. However, half the beauty of owning your own system is the ability of students getting real hands-on experience. Hence, the computer should be as accessible as possible.

Special electrical circuits are not needed either except for larger time sharing systems.

Q. Is Federal Funding available for computer programs?

A. Very little. With 13 per cent of the nation's schools having computers for student instruction, they are no longer in the new and innovative category. Hence, in 1970, a survey showed that 75 per cent of the anticipated future funding for computers was expected to come from local sources with much lesser amounts from states, USOE, NSF and private foundations.

Lexington High School, for example, cut out language training in the early grades and driver education and applied these funds to expansion of their computer program because it was deemed so important.

Considering that 71 per cent of Harvard's entering freshmen in 1968 had some exposure to computers in secondary school, it is clear that a school today which is serious about providing good education had better be willing to spend the money on an instructional computer program.

The NSF has, however, indicated that they will look favorably upon grants for teacher training using the computer if a computer is available or is about to be purchased. This suggests that a joint funding approach to the NSF and school board could be appropriate--one for the computer, the other for teacher training. Nevertheless, the computer should come first.

For a list of the few OE grants that are available, write for the 1972 "Guide to OE-Administered Programs" to The Editor, American Education, U. S. Office of Education, Washington, D. C. 20202.

EDUCATIONAL COMPUTER CONSULTANTS

This is a small list of educational consultants who can help you in teacher training or other aspects of a proposed computer program. Frequently existing users can provide useful information or teacher training to a new school. Contact your local DEC office for the names of such users in your area.

Robert Albrecht
DYMAX, Inc.
P.O. Box 310
Menlo Park, Calif. 94025
415-364-3794

John Kempton
Kempton - Cline Data Systems, Inc.
Alpine Centre North
Bettendorf, Iowa 52722
319-359-9191

Walter Koetke, Robert Haven
CASE, Inc.
181 Cochitutate Road
Wayland, Ma. 01778
617-358-4605

William Messersmith
Educational Computer Cooperativ
Rich Central High School
203 South Governor's Highway
Olympia Fields, Ill. 60461

Donald Russum
Darten Computer Technology
P.O. Box 410
Pulaski, Tenn. 38478
615-363-3273

Richard Haskell
CATER Associates, Inc.
Mills Road, Box 1199
Stony Brook, NY 11790
516-751-1569

MUST READING

Nevison, John M. and Kurtz, Thomas E., The Computer as Pupil: The Dartmouth Secondary School Project. Final Report, Oct 1970. Kiewit Computation Center, Dartmouth College, Hanover, N.H. 03775.

Darby, C.A. Jr., Korotkin, A.L., Romashko, T., Survey of Computing Activities in Secondary Schools. Oct 1970. American Institutes for Research, 8555 Sixteenth Street, Silver Spring, Maryland 20910.

COMPUTERIZED ANALYSIS
OF SCHOOL COMPUTER REQUIREMENTS

An analysis of the educational and administrative computer requirements of your school can be performed by a study team within the school, by an outside consultant, by a systems house, by a computer vendor or some combination thereof. Most studies are quite expensive and require a great deal of time. To streamline this process, Digital has come up with a computerized analysis which furnishes recommendations for a minimum, average, and total program based on the experiences of several hundred existing users. You will probably want to augment these recommendations with your own judgment based on your expectations and finances.

This analysis costs $25, although if you get this form in a "Convincer Kit", you may be entitled to a discount.

Please fill in the information on the reverse and send it with your check to Education Marketing (5-2), Digital Equipment Corp., Maynard, Mass. 01754. Allow 4 weeks for delivery.

Name__________________________________Title__________________________

School____

Address____

City________________________State___________________Zip____________

COMPUTERIZED ANALYSIS OF SCHOOL COMPUTER REQUIREMENTS

1. Want analysis of educational computer requirements __, administrative __, or both __.

FOR EDUCATIONAL COMPUTER ANALYSIS

2. Number of Students in District - Grades K-12________,9-12________

3. Number of Schools - Elementary Schools___, Jr. High or Middle Schools___, High Schools___.

4. Per cent of students in a College Entrance Course___, General Course___, Vocational Course___.

5. Currently Use a Time-sharing Terminal (Y or N)? __ How many? ___

6. Is a room available that could be used as a comput

7. Average number of students per HS math class___.

8. Interested in using a computer which subject areas:

	Very Interested	Mildly Interested	Not Interested
Mathematics	__	__	__
Physics	__	__	__
Chemistry	__	__	__
Biology	__	__	__
Earth Science	__	__	__
Social Studies	__	__	__
Business Studies	__	__	__
Computer Science	__	__	__
Other______________	__	__	__

FOR ADMINISTRATIVE COMPUTER ANALYSIS

Fill in questions 2, 3, 4, and 6 above.

9. How are following tasks done now?

	Hand	Tab Equipment	Computer in School	Service Bureau	Tab Plus Service Bureau
Student Master File	__	__	__	__	__
Attendance Reports	__	__	__	__	__
Report Cards	__	__	__	__	__
Transcripts	__	__	__	__	__
Mailing Labels	__	__	__	__	__
AV Inventory	__	__	__	__	__
Scheduling	__	__	__	__	__
Payroll	__	__	__	__	__
Accounting	__	__	__	__	__

10. Please list the tab equipment on hand.________________________
____
____.

11. If you have a computer, list make and model____________________
____

$150 Discount Certificate

This certifies that the school whose name appears below purchased a DEC computer convincer kit and is entitled to a $150 discount on the purchase of any DEC EduSystem.

DIGITAL EQUIPMENT CORP.

David H. Ahl

David H. Ahl
Educational Products Manager

School____

Address_______________________________________

City____________________State_________Zip____

$20 Discount on a Computerized Analysis of School Computer Requirements

This certifies that the school whose name appears below is entitled to a $20 discount on a DEC computerized analysis of its educational and/or administrative computer requirements. The cost of the analysis with this certificate is only $5 compared to the usual cost of $25.

DIGITAL EQUIPMENT CORP.

David H. Ahl

David H. Ahl
Educational Products Manager

School____

Address____

City______________________State____________Zip_______

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